Science Policies Update
STUC Meeting
10 April 2008
Outline

- Cycle 16 Update – see HST MO presentation
- Cycle 17 Proposal Submission
- HST Lunar Initiative
Cycle 17 Proposal Submission
Schedule

SM4 is scheduled for August 28 2008
- SM4 complete by early September 2008
- SMOV during September/October 2008
- HST available for observations October-November 2008

Cycle 17 schedule
- CP17 release – 3 December 2007
- Proposal deadline – 7 March 2008 (2 weeks before Chandra)
- HST TAC meets @ STScI/JHU – May 12-16 2008
- Notification May 28 2008
- Phase II reviews – July/August 2008 (pre-SM4)
- Observations start – late-September/October 2008
  - Phased implementation by instrument
- Cycle 17 ends December 31 2009
Cycle 17 TAC - preparations

Cycle 17 will offer a broad instrumental suite
- WFC3, COS, ACS (all cameras), STIS, NICMOS, FGS
- Spectroscopy will become possible again with HST

We anticipated more proposals ➔ several steps to deal with this:
- Add extra panel by combing Solar System with Exoplanets, Circumstellar Material and Star Formation → mirror panels for Solar system programs for the first time (12 panels in total)
- 1 extra week for panelists reviews
- Panelists asked to provide preliminary grades for 2/3rds proposals

Contingencies
- ACS & STIS repairs are on best effort basis; proposals to use either instrument must provide contingency plans for non-availability → TAC/panels will advise on ranking
- HST TAC/panels will be asked to rank deeper than normal
Phase I Schedule

- Dec 3  CP Release
- Jan 17  APT Release
- Mar 7  Phase I Deadline
- Mar 25  Ship CDs to Panelists
- Mar 26 - May 12  Review Preparations
- May 8  Preliminary grades
- May 12-14  Panels meet
- May 14-16  TAC meets
- May 24 - 26  Memorial Day Weekend
- May 27  Director’s Review
- May 28  Notifications start
Submission Statistics

- **960 Proposals requesting almost 21000 orbits:**
  - 753 GO (583 last cycle)
  - 41 Snaps (39 last cycle)
  - 21 Surveys (26 last cycle)
  - 145 Archival Research (173 last cycle)
  - 6 Pure Parallels for 1361 orbits

- **181 proposals submitted from ESA PIs**
  - 172 GOs for 4066 orbits
  - 8 Snaps for 892 targets
  - 1 Survey for 8 orbits
Key Points

- Largest orbit request for TAC proposals since Cycle 11
- 3rd Largest Orbit Request (behind only Cycles 7 & 11)
- Future Cycle requests on par with previous years
- Chandra requests down; NOAO the same; no Spitzer
- Calibrations: 4 GO and 2 AR
- Archival Research requests slightly down
- Largest number of Investigators ever
- Relatively low interest in Survey programs (still)
- 6 Lunar programs submitted – all technically feasible

(Statistics compiled by Brett Blacker)
### Cycle 17 Instrument Configuration/Modes

<table>
<thead>
<tr>
<th>Instrument</th>
<th>Configuration</th>
<th>Mode</th>
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- Imaging: 78.91%
- Spectroscopy: 19.58%
- FGS: 1.5%
Science Categories by Proposals

- Extra-Solar Planets: 5%
- Solar System: 4%
- Star Formation: 4%
- Resolved Stellar Populations: 11%
- Cool Stars: 7%
- ISM and Circumstellar Matter: 10%
- Hot Stars: 10%
- ISM in External Galaxies: 4%
- AGN/Quasars: 11%
- Quasar Absorption Lines And IGM: 5%
- Unresolved Stellar Populations and Galaxy Structure: 16%
- Cosmology: 13%
Science Categories by Orbits

- Cosmology: 24%
- Unresolved Stellar Populations and Galaxy Structure: 17%
- AGN/Quasars: 10%
- Quasar Absorption Lines And IGM: 7%
- ISM and Circumstellar Matter: 7%
- Hot Stars: 5%
- Cool Stars: 4%
- Resolved Stellar Populations: 12%
- Star Formation: 4%
- Solar System: 3%
- ISM in External Galaxies: 3%
- Extra-Solar Planets: 4%
Proposals Submitted by US State

Graph showing the number of submissions by U.S. state.
Archival Research Proposals

- Blue line represents Submitted proposals.
- Green line represents Approved proposals.

Proposals vs. Cycle:

- Cycle 1: 10 proposals
- Cycle 2: 20 proposals
- Cycle 3: 30 proposals
- Cycle 4: 40 proposals
- Cycle 5: 50 proposals
- Cycle 6: 60 proposals
- Cycle 7: 70 proposals
- Cycle 8: 80 proposals
- Cycle 9: 90 proposals
- Cycle 10: 100 proposals
- Cycle 11: 110 proposals
- Cycle 12: 120 proposals
- Cycle 13: 130 proposals
- Cycle 14: 140 proposals
- Cycle 15: 150 proposals
- Cycle 16: 160 proposals
- Cycle 17: 170 proposals

- 7AR Cycle: Sharp increase followed by decrease and then steady rise.
- Director's Review: 20 proposals.
- TAC meets: 20 proposals.
Orbit Size by Cycle

- Median Submitted
- Median Approved
- Average Submitted
- Average Approved

Orbit Size

Cycle
## Proposal distribution by panel

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Panels with >80 proposals ➔ assign 7 reviewers to each proposal
Panels with <80 proposals ➔ each panelist reviews all (unconflicted) proposals
Panel Allocations from Cycle 16

*based on a combination of orbit and proposal pressure*

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3000 orbits total allocation: 1700 panels, 300 subsidy, 1000 TAC
1700 orbits distributed among 11 panels; Solar System assigned “bonus” orbits
Instructions to the TAC

- **SM4 is scheduled for 28 August 2008**
  - Install new instruments, WFC3 (replacing WFPC2) & COS (COSTAR)
  - Repair existing instruments, ACS & COS
  - NICMOS & FGS also available

- **TAC/panels should assume that all instruments are available and working nominally**
  - But, ACS & STIS repairs are on a best effort basis
  - Proposals requesting those instruments should provide alternate strategy should either not be available in Cycle 17 (more on this later)

- **Simple selection criteria for Cycle 17**

  **Pick the best science**
A question for the STUC

- **HST proposal format**
  - Call for Proposals currently specifies required sections and lists specific page limits for each, e.g. for a Large Program
    - PDF limited to 11 pages
    - Sections: Scientific Justification, Description of Observations, Special Requirements (GO), Coordinated Observations (GO), Duplications, Analysis plan (AR & Theory), Budget Narrative (AR & Theory)
    - Scientific Justification no more than 6 pages
    - Figures & references after Scientific Justification
    - No changes to format
  - **Should we list assigned sections (for AR or GO) plus a total page limit, and let the PI adjust to fit?**
    - Allow format changes, but specific 12 pt. type except for reference
    - Allow figures within the text
HST Lunar Initiative
HST and the Moon – Garvin program

Hubble's lunar observations

- Aristarchus crater area
- Apollo 15 landing site
- Apollo 17 landing site
HST Lunar Initiative

STScI was asked by SMD to support NASA’s Vision for Space Exploration via the lunar science community

- HST observations in support of LCROSS (January 2009)
- GO proposals to observe the Moon enabled in Cycle 17 call for Proposals → User Information Report on “Observing the Moon” available from Nov 1st to aid proposers
- DD allocation of ~25 orbits to Grunsfeld et al

Lunar initiative for exploratory science

- Call for white papers on lunar science – deadline 31/1/2008
- 6 white papers submitted by the deadline – several have also been submitted for consideration in Cycle 17
- Technical assessment by STScI HST MO – most are feasible with current HST 3-gyro operations
- Scientific review by Lunar Advisory Group (external)
- Recommendation to Director by June 2008
- Approximately 30 orbits of DD time potentially available for exploratory lunar programs in Cycle 18
Lunar Initiative Timeline

- **10-Oct-2007**: Call for white papers issued
  - Day after A. Stern’s DPS announcement
  - HST website updated accordingly
- **31-Jan-2008**: White paper deadline
  - Lunar Advisory Group (LAG) reviews and ranks white papers
  - LAG members: Paul Lucey (Hawaii) & Diane Wooden (Ames)
- **30-Apr-2008**: LAG report to STScI Director
- **01-June-2008**: Technical report to STScI Director
  - STScI and HSTP preliminary technical assessment
- **05-Sep-2008**: SM4 begins
- **Late Oct/Nov-2008**: Cycle 17 begins
- **04-July-2009**: Cycle 18 Phase I deadline
- **01-Sep-2009**: Call for lunar science proposals issued
- **15-Oct-2009**: Lunar science proposal deadlinesubmissions
- **01-Jan-2010**: Cycle 18 begins
- **Jan-2010**: Lunar science proposal review
- **Feb-2010**: Proposers notified of review results
- **Apr-2010**: Phase II submission
LCROSS

- **LCROSS (Lunar Crater Observation and Sensing Satellite)**
  - Goal is to determine whether water ice exists in permanently shadowed regions - polar crater site
  - Scheduled for lunar impact in January 2009
  - Uses Earth-departure upper rocket stage to impact lunar surface
    - Impact creates an ejecta plume subject to solar UV radiation
    - Plume to be observed by LCROSS and Earth-based telescopes
    - LCROSS passes through plume and also impacts surface 10-15 minutes later

- **HST observations – DD program, PI A. Colaprete (LCROSS)**
  - Goal is to observe OH 3085A emission and possibly hydrocarbons
  - Observing strategy similar to 1999 Lunar Prospector program
    - Orbit 1 timed to observe impact (STIS slit)
    - Orbits 2-5 to observe transient OH exosphere
  - Execution will depend on successful completion of SM4 & SMOV